

## CRANKCASE/BALANCER

### BACKLASH ADJUSTMENT

Install the engine into the frame (page 7-8).

*Adjust the backlash while the engine is cold (below 35°C/ 95°F) and the engine is not running.*

Loosen the upper and lower balancer shaft holder pinch bolts.

*Excessive force can cause balancer gear, bearing and shaft damage. Do not turn the shaft more than necessary.*

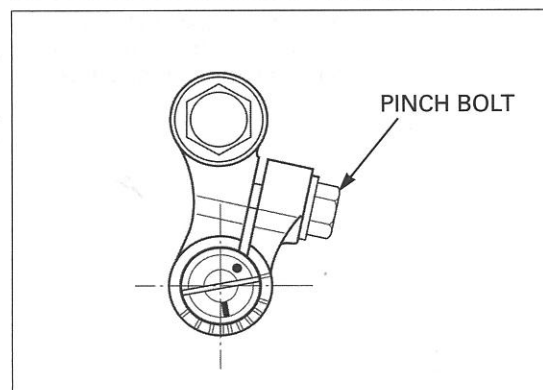
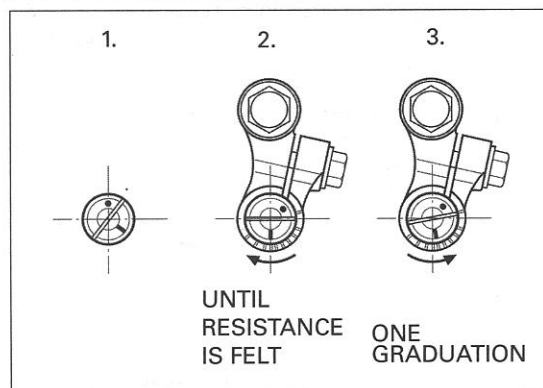
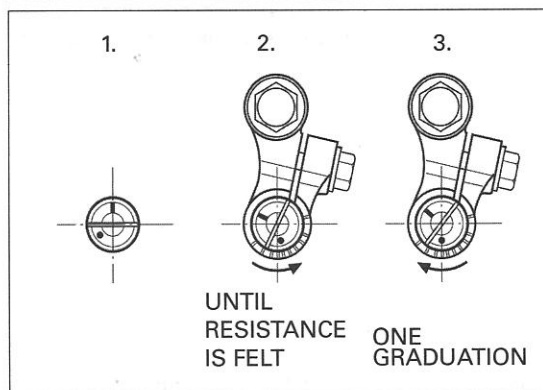
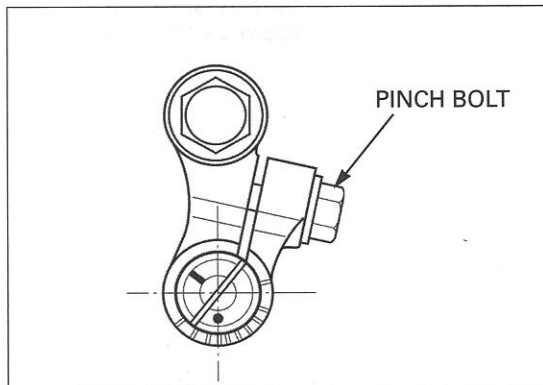
Turn the upper balancer shaft counterclockwise until resistance is felt, then back it off one graduation using the punch mark as a measure.

Turn the lower balancer shaft clockwise until resistance is felt, then back it off one graduation using the index line as a measure.

Warm up the engine and let it idle.

If the balancer gear noises are excessive, adjust the balancer backlash as follows:

1. Turn the upper balancer gear shaft counterclockwise until the gears begin to make a "whining" noise. Then turn the gear shaft clockwise until the gear "whining" noise disappears. Tighten the upper balancer shaft pinch bolt.

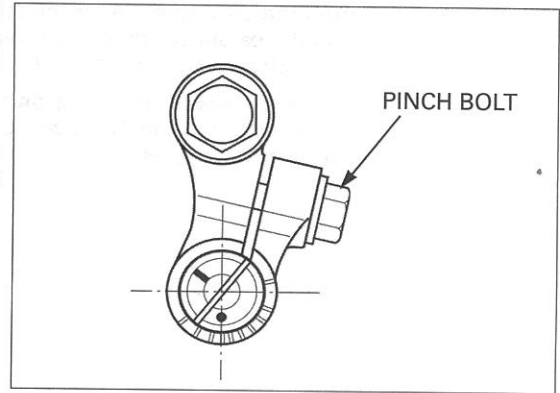


2. Turn the lower balancer gear shaft clockwise until the gears begin to make a "whining" noise. Then turn the gear shaft counterclockwise until the gear "whining" noise disappears. Tighten the lower balancer shaft pinch bolt.

After all gear backlash adjustments are done, snap the throttle and make sure the gear noises are not excessive.

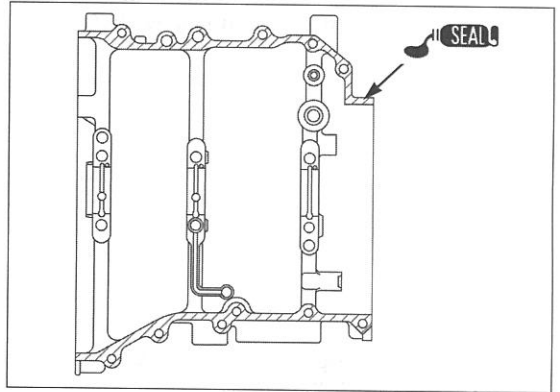
If the gear "whine" noise is excessive, the backlash is too small.

If the gear "rattling" noise is excessive, the backlash is excessive.

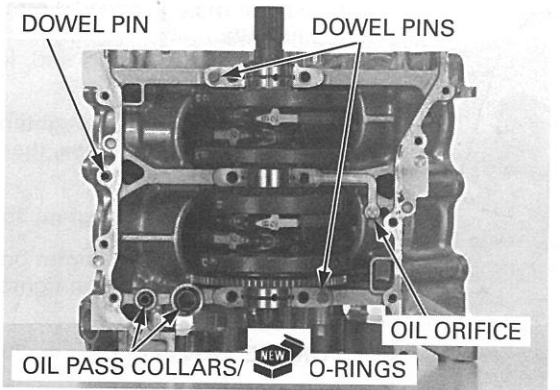


## CRANKCASE ASSEMBLY

Apply a light, but thorough, coating of liquid sealant (Three Bond 1207B or equivalent) to the crankcase mating surface except to the main bearing journal bolt area and the oil passage area as shown.



Install the two dowel pins (solid).  
Install the dowel pin (collar).  
Install the oil pass collars and new O-rings.  
Install the oil orifice with its small I.D. side facing the lower crankcase.



Make sure the upper balancer timing marks are flush with the crankcase mating surface.

